APPENDIX F

MAJOR EQUIPMENT LIST

F.1 INTRODUCTION

The following equipment descriptions are based on conceptual design and are representative of the proposed scope.

F.2 RESOURCE PRODUCTION FACILITY

All sizes and capacities are approximate and are subject to change during detailed engineering.

Quantity	Capacity	Description
4	33%	Wellhead Separators
4	33%	SP Crystallizers
4	33%	LP Crystallizers
4	33%	Atmospheric Flash Tanks
2	67%	Dilution Water Heaters
6	100%	Scrubbers
6	100%	Demisters
2	67%	Primary Clarifiers
2	67%	Secondary Clarifiers
4	67%	Injection Booster Pumps (18,000 gpm)
4	67%	Main Injection Pumps (18,000 gpm)
2	100%	Brine Pond Pumps
2	100%	Vacuum Belt Filters (Filter Press, Feed Pumps, Filtrate Thickener, Flocculant System)
2	100%	Conveyor System
4	67%	Seed Pumps – SP
2	50%	High-Pressure Steam Vent Tank
1	100%	Standard-Pressure Steam Vent Tank
1	100%	Low-Pressure Steam Vent Tank

F.3 POWER GENERATION FACILITY

F.3.1 TURBINE GENERATOR SET

Quantity	Capacity	Description
1	100%	Condensing T/G set with three cylinders (three pressures: HP, SP, LP), nominal net output of 185 MW. • Lube oil system. • Steam Strainer • Main Oil Pump • Turbine control and protective devices • Turning gear. • Gland steam system • Governor valves • Steam stop valves. • Enclosure • Turbine Maintenance Gantry Crane 70 Ton

F.3.2 CONDENSER

Quantity	Capacity	Description
1	100%	Surface Condenser (condenser package with HP and SP/LP condensers in series, 2,479 million BTU/hr heat rejection rate)
2	100%	Condensate Hotwell Pumps – HP – 3,000 gpm
2	100%	Condensate Hotwell Pumps – SP/LP – 3,000 gpm
1	100%	Condensate Tank (steel) – 120,000 gal.
6	100%	Purge Water Pumps HP(2, 270 gpm ea.), SP(2, 350 gpm ea.), LP(2, 450 gpm ea.)

F.3.3 COOLING WATER SYSTEM

Quantity	Capacity	Description
2	50%	Counterflow Cooling Tower – 10 cells ea.
6	50%	Vertical Circulating Water Pumps (60,500 gpm)
2	100%	Cooling Tower Wetdown Pumps
2	100%	Blowdown Pumps – 1000 gpm
2	100%	Auxiliary Cooling Water Pumps – 12,000 gpm
1	100%	Bleach Storage Tank (Plastic) – 10,000 gal
1	100%	Biocide Storage Tank (Plastic) – 3,000 gal
1	100%	Dispersant Storage Tank (Plastic) – 1,500 gal

F.3.4 NON-CONDENSIBLE GAS REMOVAL SYSTEM

Quantity	Capacity	Description
4	33%	Vacuum System

F.3.5 ELECTRICAL EQUIPMENT

Quantity	Capacity	Description
1	100%	Generator Step-Up Transformer with OLTC and lightning arresters mounted on GSUT
2	100%	Dead-end Structure w/Switch
3	100%	CT/PT Combined Metering Unit
2	100%	Power Circuit Breaker1200A, 230kV
1	100%	Relay/Metering Panel (IID circuit)
1	100%	9400A SF6 Gen. Circuit Breaker
4	100%	Electrical Power Distribution Center
1	100%	9400A 16 kV Bus Duct (Isolated phase)
2	50%	5 kV Switchgear Circuit Breaker
2	50%	9.6/12.8/16 MVA, 16/4.16 kV Transformers
2	50%	2000/2240 kVA, 4160/480 V Transformers
3	100%	1000/1120 kVA,4160-480V Transformers
2	100%	5 kV Medium Voltage Controller Line-Up
6	100%	480V Motor Control Center
1	100%	Electrical Control / Metering Panel
2	100%	Uninterruptible Power Supply
2	100%	125 V DC Battery System
2	100%	2400A, 480V Bus Duct
1	100%	1600A, 480V Bus Duct
1	100%	2000 kW, 4160V kW Standby Generator with Circuit Breaker and Sync. Controls
1	100%	300 kW, 480V Standby Generator with Circuit Breaker and Sync. Controls

F.4 COMMON FACILITIES

F.4.1 COMPRESSED AIR SYSTEM

Quantity	Capacity	Description
2	100%	Air compressors (non-lube)
2	100%	Air receivers (with prefilters and afterfilters)
2	100%	Air dryers (heatless)

F.4.2 FIREWATER SYSTEM

Quantity	Capacity	Description
1	100%	2,500 gpm electric motor driven fire pump.
1	100%	2,500 gpm diesel engine fire pump.
1	100%	Firewater storage tank - 300,000 gal.
1	100%	Jockey pump.

MAJOR EQUIPMENT LIST

Quantity	Description	Size/Capacity(1)	Remarks
4	Wellhead Separators	12'ϕ x 48'	Seam-to-seam
4	SP Crystallizers	17'ϕ x 42'	Seam-to-seam
4	LP Crystallizers	17'ϕ x 42'	Seam-to-seam
4	Atmospheric Flash Tank	17'ϕ x 40'	Excludes stack height
2	Dilution Water Heaters	16'ϕ x 20'	Seam-to-seam; excludes stack height
6	Scrubbers	6'ϕ x 20'	(2) HP, (2) SP, (2) LP
6	Demisters	6'ϕ x 20'	(2) HP, (2) SP, (2) LP
2	Primary Clarifiers	130'ϕ x 24'	
2	Secondary Clarifiers	130'ϕ x 22'	
2	Storm Water Pump		
1	Oily Water Separator Pumps		
1	Oily Water Separator		
2	RO/Potable Water System	120 gpm	with RO Storage Tank (12'ϕ x 8')
1	H_2S Abatement System		LO-CAT system
1	Benzene Abatement System		Commercially available activated charcoal system
	Misc. Chemical Tanks		See Table 3.4-7 for listing and details.

(1): Size/Capacity is for each unit

SIGNIFICANT STRUCTURES AND EQUIPMENT

Quantity	Description	Dimension (ft)		
		Length	Width	Height
5	Brine Production Wellpads	700	300	
3	Brine Injection Wellpads	700	300	
1	Filter Cake Handling Structure	180	40	28
2	Brine Ponds	800	90	7
1	Fire Pump Skid & Housing	30	20	12
1	Hydro Slab	100	60	n/a
1	Service Water Pond	48,000	Sq. ft.	n/a
1	Rain Water Detention Pond	100,000	Sq. ft.	
1	Control Building	150	85	16
1	Substation	130	130	n/a
1	Earthen Perimeter Burm	8000	10 (at top)	8